1.1.5 Explain the nature of equilibrium

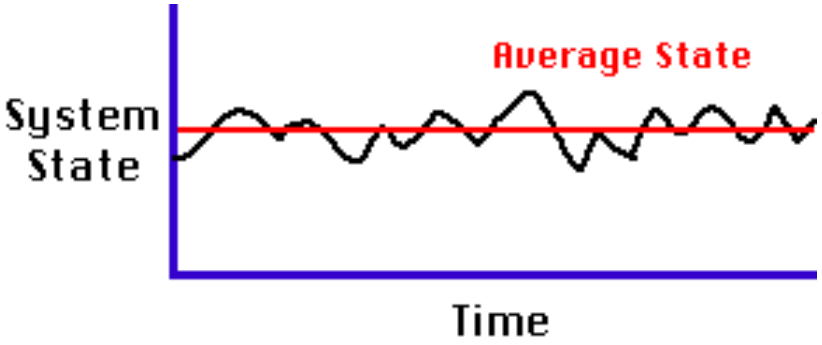
What is equilibrium?

- the average condition of a system in balance over a specific period of time

- Your syllabus identifies two types:
  - Steady-state equilibrium
  - Static equilibrium *(yawn!)*

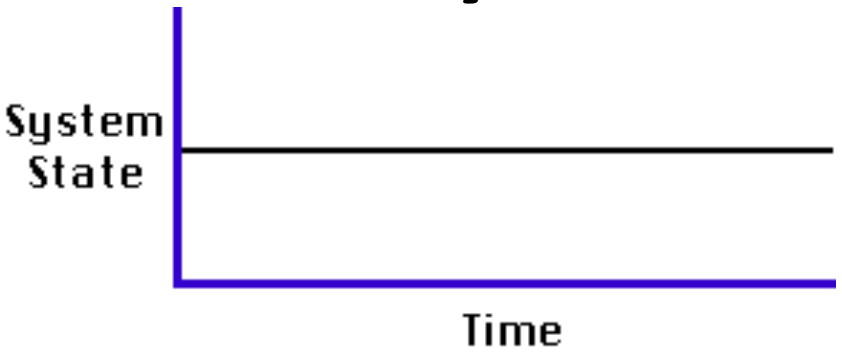
Graphing Equilibrium

Steady Systems:



- changes over time
- Many 'natural' open systems
- inputs = outputs (balance)
- Negative feedback

Static Systems:



- No change over time
- Mostly NON-living systems
- No input or output
- No feedback

1.1.6 Define and explain the principles of positive feedback and negative feedback.

Feedback

Negative

- return the system *towards* the norm
- self-regulating
- Leads to a steady-state equilibrium
- it counteracts deviation from the norm
- input = output
- decreases, reduces or dampens the amount of change

Positive

- Pushes the system *away* from the norm
- Unregulated
- *Un*steady, unstable, out of balance
- accelerates deviation from the norm
- output increases output
- increases the amount of change (exacerbates the problem)

Recap: system state and feedback